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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,481	02/05/2002	Hitoshi Yamamoto	2271/66674	6329

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EXAMINER

KNOLL, CLIFFORD H

ART UNIT	PAPER NUMBER
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2112

DATE MAILED: 07/12/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,481

Applicant(s)

YAMAMOTO, HITOSHI

Examiner

Clifford H Knoll

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

The incorporation of *essential* material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

The specification incorporates by reference (p. 31, lines 12-15) the foreign priority document.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 5-6, 8-11, 14-15, 17-20, 23-24, and 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Shah (US 4536839).

Regarding claims 1, 10, and 19, Shah discloses storage arranged a storage arranged and configured to store a plurality of selection signals for specifying a priority order against a number N of requests (e.g., col. 7, lines 54-61); a priority order determiner arranged and configured to causes said storage to output one of said plurality of selection signals in a predetermined sequence in response to a demand for arbitration (e.g., col. 7, line 67 – col. 8, line 1); and an arbitrator arranged and configured to perform an arbitration operation based on said priority order against said number N of requests specified by said one of said plurality of selection signals which is output from said storage (e.g., col. 8, lines 25-27).

Regarding claims 2, 11, and 20, Shah also discloses wherein said storage stores a number N or more of said selection signals for differently specifying said priority order against said number N of requests (e.g., col. 10, lines 43-49).

Regarding claims 5, 14, and 23, Shah also discloses wherein said priority order determiner specifies selection signals to be in turn selected in response to said demand for arbitration, out of said plurality of selection signals stored in said storage (e.g., col. 10, lines 56-59).

Regarding claims 6, 15, and 24, Shah also discloses wherein said priority order determiner comprises: a counter arranged and configured to increment said counter by 1 and to output a counting value to said storage in response to said demand for arbitration; and a counter resetter arranged and configured to reset said counter when

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said counting value counted by said counter matches an upper limit value which is externally re-programmable, and wherein said storage outputs one of said plurality of selection signals specified by said counting value output from said counter of said priority order determiner (e.g., col. 9, line 62 – col. 10, line 5).

Regarding claims 8, 17, and 26, Shah also discloses wherein said priority order determiner causes said storage to output one of said plurality of selection signals in a predetermined sequence in response to a demand for arbitration after a request from a requester having a highest priority is permitted by said arbitrator (e.g., col. 16, lines 54-59).

Regarding claims 9, 18, and 27, Shah also discloses wherein said storage stores said plurality of selection signals each including a mode setting signal for setting an operation mode to a first operation mode in which said priority order is changed in accordance with each demand for arbitration (e.g., col. 16, lines 54-56), or to a second operation mode in which said priority order is changed in response to said demand for arbitration made after a presently highest priority requester raises a request and is permitted (e.g., col. 16, lines 56-59), and said apparatus further comprising a gate circuit arranged and configured to pass said demand for arbitration to said priority order determiner when said mode setting signal output together with said selection signal from said storage sets said first operation mode and to pass said demand for arbitration to said priority order determiner after said request raised by said presently highest priority requester is permitted when said mode setting signal sets said second operation mode (e.g., col. 16, lines 63-68).

Regarding claim 28, Shah discloses storing a plurality of selection signals each designating a respective priority order for requests for bus access (e.g., col. 7, lines 54-61); providing said selection signals in a predetermined sequence, each selection signal being provided in response to a respective demand for arbitration between said requests for bus access, and the sequence in which the selection signals are provided designating a sequence of priority orders that are not fixed and differ from a round robin priority sequence (e.g., col. 10, lines 56-59); and arbitrating access to the bus for said requests for bus access in response to each demand for arbitration in accordance with the respective selection signal provided in response to the demand for arbitration (e.g., col. 8, lines 25-27).

Regarding claim 29, Shah discloses a memory arrangement storing selection signals each designating a respective different priority order for requests for bus access (e.g., col. 7, lines 54-61); a source of demands for arbitration (e.g., Fig. 1); a selection signal providing arrangement coupled with the memory arrangement and the source of demands for arbitration, and responsive to demands for arbitration from said source to provide respective selection signals from said memory arrangement (e.g., col. 10, lines 56-59); wherein the selection signals in said sequence designate non-fixed priority orders that differ from a round robin priority sequence (e.g., col. 7, lines 46-51); and an arbitrating arrangement responsive to the selection signals provided from said memory arrangement by said selection signal providing arrangement to arbitrate an order of bus access for said requests (e.g., col. 8, lines 25-27).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4, 7, 12-13, 16, 21-22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shah in view of well known equivalents as evidenced by Garrett (US 6708248).

Regarding claims 3, 12, and 21, Shah also discloses wherein said storage is a programmable storage (e.g., col. 7, lines 46-51). Shah's PROM might be inserted to obtain reprogrammability although Shah fails to expressly mention this; however, Examiner takes Official Notice that the use of reprogrammable memory for non-volatile programmable memory is widely known and commonly understood equivalent as evidenced by Garrett. Garrett teaches the essential equivalence of various embodiments of non-volatile storage (e.g., col. 5, lines 9-11). It would have been obvious to combine Shah with standard non-volatile equivalents because it is widely known the equivalent non-volatile storage devices. Therefore it would have been obvious to one of ordinary skill in the art to combine Shah with non-volatile equivalents to obtain the claimed invention.

Regarding claims 4, 13, and 22, Shah also discloses wherein said storage comprises: a plurality of re-programmable registers for storing said plurality of selection signals (e.g., col. 7, lines 46-51); and an output circuit arranged and configured to output a selection signal stored in a register specified among said plurality of re-programmable registers (e.g., col. 8, lines 25-27), and wherein said priority order determiner in turn specifies one of said plurality of re-programmable registers included in said storage in response to each of said demand for arbitration (e.g., col. 10, lines 43-49).

Regarding claims 7, 16, and 25, Shah also discloses wherein said storage comprises a plurality of re-programmable registers sequentially connected to form a shift register that shifts data stored therein in response to a signal generated in accordance with said demand for arbitration and that outputs data stored in a last-positioned register of said plurality of re-programmable registers as one of said plurality of selection signals (e.g., col. 7, lines 58-66).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Various art disclose storage based priority systems:

Benschneider (US 6133760, e.g., Fig. 4), Stewart (US 4858101, e.g., Fig. 21), Sato (US 5583999, e.g., Figs. 9-11), and Michizono (US 6029219, e.g., Abstract) all disclose various storage based priority schemes. Gehman (US 6073132) teaches prioritization distinguishing from round robin, using shifting scheme.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford H Knoll whose telephone number is 703-305-8656. The examiner can normally be reached on M-F 0630-1500.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

chk



Khanh Dang
Primary Examiner